

## CLAIMS

- 1 1. A test cable comprising:  
2 a center conductor;  
3 a conductive sleeve having a first end and a second end and an effective  
4 electrical length equal to an odd quarter wavelength of a frequency of interest,  
5 surrounding a portion of the center conductor, with the first end electrically  
6 coupled to the center conductor;  
7 a dielectric spacer, located inside the conductive sleeve, for preventing a  
8 portion of the center conductor from electrically coupling to the conductive sleeve;  
9 and  
10 a dielectric joint, coupled to the second end of the conductive sleeve, for  
11 positioning a portion of the center conductor in a middle of the second end.
- 1 2. A test cable according to claim 1 wherein the center conductor includes a  
2 single wire.
- 1 3. A test cable according to claim 1 wherein the center conductor includes  
2 multiple wires.
- 1 4. A test cable according to claim 1 wherein the dielectric spacer is constructed  
2 from a rigid dielectric material.
- 1 5. A test cable according to claim 1 wherein the dielectric spacer is constructed  
2 from a compressible dielectric material.
- 1 6. A test cable according to claim 1 wherein the dielectric spacer comprises a  
2 spherical dielectric element.
- 1 7. A test cable according to claim 6 wherein a diameter of the spherical  
2 dielectric element is shorter than a diameter of the conductive sleeve.

- 1 8. A test cable according to claim 6 wherein the center conductor is located  
2 inside the dielectric spacer along a diameter of the dielectric spacer.
- 1 9. A test cable according to claim 6 wherein the dielectric spacer comprises  
2 multiple spherical dielectric elements.
- 1 10. A test cable according to claim 1 wherein the dielectric spacer comprises a  
2 tubular solid dielectric element with an outer diameter and an inner diameter.
- 1 11. A test cable according to claim 10 wherein the center conductor is located  
2 inside the dielectric spacer along a longitudinal axis of the tubular solid dielectric  
3 element.
- 1 12. A test cable according to claim 10 wherein the outer diameter of the tubular  
2 solid dielectric element is approximately a diameter of the conductive sleeve and  
3 the inner diameter of the tubular solid dielectric element is larger than a diameter  
4 of the center conductor.
- 1 13. A test cable according to claim 10 wherein the dielectric spacer further  
2 comprises a tubular air dielectric element inside the tubular solid dielectric  
3 element.
- 1 14. A test cable according to claim 1 wherein the dielectric joint comprises a  
2 spherical dielectric element.
- 1 15. A test cable according to claim 14 wherein a diameter of the spherical  
2 dielectric element is approximately equal to a diameter of the conductive sleeve.
- 1 16. A test cable according to claim 14 wherein the center conductor is located  
2 inside the dielectric joint along a diameter of the dielectric joint.

- 1 17. A test cable according to claim 1 wherein the first end comprises a  
2 conductive bushing
- 1 18. A test cable according to claim 17 wherein the first end further comprises a  
2 hemispherical dielectric cover.
- 1 19. A test cable according to claim 1 wherein the conductive sleeve is  
2 cylindrical in shape.
- 1 20. A test cable according to claim 1 wherein the dielectric joint is constructed  
2 from a rigid dielectric material.
- 1 21. A test cable according to claim 1 wherein the dielectric joint is constructed  
2 from a compressible dielectric material.

- 1 22. A test cable comprising:  
2 a first rigid segment having an effective electrical length equal to an odd  
3 quarter wavelength of a frequency of interest;  
4 a joint, coupled to one end of the first rigid segment;  
5 a second rigid segment having an effective electrical length equal to an odd  
6 quarter wavelength of the frequency of interest, coupled to the joint; and  
7 a linear conductor, located within the first rigid segment, the joint, and the  
8 second rigid segment.
- 1 23. A test cable according to claim 22 further comprising:  
2 a first dielectric spacer, located inside the first rigid segment; and  
3 a second dielectric spacer, located inside the second rigid segment.
- 1 24. A test cable according to claim 22 further wherein the first rigid segment  
2 comprises a conductive sleeve with one end electrically coupled to the linear  
3 conductor.
- 1 25. A test cable according to claim 24 wherein the joint comprises a dielectric  
2 element that maintains a portion of the linear conductor in a middle of the  
3 conductive sleeve.